of a plunger of said actuator at a substantially constant value over a fractional actuation range.

a' cont.

3. (Once Amended) A method for controlling an actuator, said method comprising maintaining a forced resonant frequency of a plunger of said actuator substantially constant at a maximum maintainable value over a fractional actuation range.

4. (Once Amended) A method for controlling an actuator, said method comprising maintaining a forced resonant frequency of a plunger of said actuator substantially at a value of a natural mechanical resonant frequency of said plunger, said forced resonant frequency being maintained at the value of said natural mechanical resonant frequency over an actuation range.

5. (Once Amended) A method for controlling an actuator over an actuation range, said method comprising:

employing an actuating impetus that is non-linear with displacement;

using displacement as the only measured feedback signal; and,

keeping a forced resonant frequency of a plunger of the actuator substantially constant under actuation.

6. (Once Amended) A method as in claim 5, wherein said actuating impetus is controlled by a software control algorithm.

7. (Once Amended) A method as in claim 5, wherein said forced resonant frequency is kept substantially at a constant value over a fractional actuation range, said constant value being substantially equal to a maximum attainable oscillation frequency of said plunger under actuation over said fractional range.

a' amd'd.

8. (Once Amended) A method as in claim 5, wherein said forced resonant frequency is maintained substantially equal to a natural mechanical resonant frequency of said plunger.

9. (Once Amended) A method as in claim 6 comprising imposing a constant actuation gradient on said actuator as long as a desired actuating signal to said actuator is constant.

10. (Once Amended) A method as in claim 9, wherein the forced resonant frequency is substantially equal to a maximum attainable oscillation frequency of said plunger under actuation over a fractional actuation range.

11. (Once Amended) A method as in claim 9 wherein said forced resonant frequency is substantially equal to a natural resonant frequency of said plunger.

14. (Once Amended) A method for controlling an actuator over an actuation range, said method comprising

actuating the plunger of said actuator using one of electromagnetic and electrostatic force to provide an actuating force ;

measuring a plunger displacement as a feedback signal;

obtaining a first calibration relationship of plunger displacement as a function of activating impetus;

an actuation gradient as a function of the plunger displacement, said actuation gradient being chosen to impose a constant forced resonant frequency on said plunger at each displacement ; and ,

keeping said forced resonant frequency of said plunger substantially constant over said actuation range.

16. (Once Amended) A method as in any of claims 1 to 11 or 14 wherein said actuator is a microelectromechanical actuator.

a2 cncl'd.

17. (Once Amended) A method as in claim 2, wherein said fractional actuation range includes at least a portion of a snap-down region of said actuator.

18. (Once Amended) A method as in claim 3, wherein said fractional actuation range includes at least a portion of a snap-down region of said actuator.

19. (Once Amended) A method as in claim 4, wherein said fractional actuation range includes at least a portion of a snap-down region of said actuator.

20. (Once Amended) A method as in claim 5, wherein said fractional actuation range includes at least a portion of a snap-down region of said actuator.

21. (Once Amended) A method as in claim 9, wherein said fractional actuation range includes at least a portion of a snap-down region of said actuator.

22. (Once Amended) A method as in claim 14, wherein said fractional actuation range includes at least a portion of a snap-down region of said actuator.

23. (Once Amended) A method as in claim 16, wherein said fractional actuation range includes at least a portion of a snap-down region of said actuator.

Add new claims 24 to 26 as follows:

a3

24. (New) A method as in claim 5 wherein the plunger comprises a cantilever and controlling the actuator comprises deflecting the cantilever.

25. (New) A method as in claim 24 wherein the cantilever comprises a micromachined cantilever and deflecting the cantilever comprises applying an electrostatic potential between the cantilever and an electrode.

26. (New) A method as in claim 5 wherein controlling the actuator comprises separately and concurrently controlling a displacement of the plunger and a slope of the actuating impetus with respect to the displacement of the plunger.